

DIGITAL MINDSETS: TEACHERS' TECHNOLOGY USE IN PERSONAL LIFE AND TEACHING

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Over the last few years there have been important calls for new literacies to become an integral part of language education. Yet traditional approaches to technology continue to persist in many contexts. Although the role of teachers in this problem has been acknowledged, little is known about how teachers' everyday digital literacy practices influence teaching with technologies. Informed by Literacy Studies, the paper reports the findings from a larger qualitative study and explores the relationship between technology use in personal and professional domains of three language teachers. The study found that the participants' digital mindsets, comprising assumptions about affordances of digital technologies, shaped the ways in which the participants used digital technologies within and beyond classrooms. New literacies required creative and elaborated assumptions about affordances; however, these understandings had different significance for the participants. The article explains why teaching new literacies continues to be challenging and suggests implications for teachers' professional learning and education and language pedagogy.

Language(s) Learned in this study: English, Chinese

Keywords: ICT Literacies, Literacy, Teacher Education

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INTRODUCTION

Over the last few years, research in the field of Literacy Studies has made valuable contributions to understanding literacy in relation to digital technologies and re-thinking approaches to teaching language and literacy. One of them is the emergence of *new literacies* which are associated with networking, collaboration, interaction and creativity supported by technologies (Lankshear & Knobel, 2011). Studies show that to be able to engage with information and communication technologies (ICT) effectively, students need opportunities to learn relevant capabilities beyond print-based literacies. Thus, new literacies should become an integral part of language and literacy education.

However, language teaching with digital technologies has not been transformed and many teachers have been reluctant to acknowledge this extended understanding of literacy (Lotherington & Jenson, 2011). Technology use is often limited to PowerPoint presentations, word processing, e-mails and Web searches (Murray, 2008; Ware, 2008). It is predominantly framed by a traditional view of technology as a tool to improve language skills rather than to engage students in new literacies which can support language speakers in their authentic uses of technologies in target languages (Tour, 2010; 2012).

Researchers refer to different factors to explain this problem. Some studies identify serious institutional barriers: school culture privileging traditional print-based literacies (Tan & McWilliam, 2009); tight budgets (Warschauer, 2008); language-dominant assessment paradigms, and standardised testing culture (Tan, Bopry & Guo, 2010). Some studies refer to professional issues that constrain teachers: insufficient teaching experience (Dooly, 2009), ineffective professional training (Dooly, 2009), simplistic professional views about the role of technology in language education (Chik, 2011; Tan et al., 2010), lack

of awareness about appropriate pedagogical approaches, (Dooley, 2009; Tan & McWilliam, 2009) and moral and pastoral obligations of professional identity (Chik, 2011).

However, focusing on institutional and professional constraints is insufficient. As Ware (2008) argues, the use of technologies in classrooms requires “a substantial amount of teachers’ *personal* [emphasis added] interest and enthusiasm for new technologies” (p. 48). From this perspective, to gain a more comprehensive understanding of why technology use often remains traditional, teachers’ personal experiences with digital technologies are important to explore. This paper reports the findings from a study which researched teachers’ personal and professional engagement with ICT with the help of three questions:

1. How do teachers use digital technologies in their everyday lives and teaching?
2. What shapes the ways in which teachers use technologies?
3. What is the relationship between teachers’ personal and professional use of technologies?

The paper reviews previous research in relation to new literacies as well as the relationship between teachers’ digital lives within and beyond classrooms. Then, it reports how the participants used and thought of digital technologies in their everyday lives and teaching to explore the connections between these two domains. The paper concludes with some implications for teacher education and professional learning and language pedagogy.

LITERATURE REVIEW

A Social Approach to Literacy

This study was informed by two interconnected perspectives fundamental to Literacy Studies. The first perspective is that literacy is a socially situated practice, linked to people’s identities, having multiple forms, and is ideological in nature (Barton & Hamilton, 1998; Street, 1984). Two concepts—*literacy events* and *literacy practices*—are central to this definition. While events are “observable episodes” (Barton & Hamilton, 1998, p. 7), practices are non-observable because they are “the general cultural ways of utilising written language which people draw upon in their lives” (Barton & Hamilton, 1998, p. 6). People always bring their cultural knowledge and understandings when they read or write and, thus, their literacy practices are always connected to their values, beliefs, and attitudes.

Gee’s theory of *D/discourse* extends this understanding of literacy by explaining how beliefs and values that inform literacy practices are constructed and how they play out in these experiences (Gee, 1996; 1999). Gee (1996; 1999) argues that it is important to focus not on language alone but on a wide range of other interrelated social issues that contribute to meaning making which Gee (1999) calls *Discourse* (p. 13). Discourses are “different ways in which we humans integrate language with non-language ‘stuff’, such as different ways of thinking, acting, interacting, valuing, feeling, believing, and using symbols, tools” (Gee, 1999, p. 13). According to Gee (1996), language cannot be viewed as something general because there are specific varieties of language in different contexts. However, at the same time Discourses may overlap and interact in complex ways. From this perspective, while literacy practices are aligned with specific Discourses, they may also have something in common across different contexts.

The second perspective central to this research is that literacy and digital technologies are closely related. Many daily activities are now mediated by literacy through technologies which have moved literacy beyond print, leading to the emergence of new literacies (Lankshear & Knobel, 2011). New literacies are associated with Web 2.0 technologies which support social interaction, participation, taking active roles, generating and distributing multimodal content, connectivity, collaboration, shared expertise, team/community, and creativity (Jones & Hafner, 2012; Lankshear & Knobel, 2011; Merchant, 2013; Page, Barton, Unger, & Zappavigna, 2014). They offer opportunities for ongoing generation and

communication of information fostering dynamic and non-linear practices (Jones & Hafner, 2012). New kinds of texts available in these spaces encourage creative improvisations with multimodality (New London Group, 1996; Sheridan & Rowsell, 2010). Establishing and maintaining connections online is associated with communities, civic engagement, and taking actions for social transformations which encourages participatory and collaborative digital literacy practices (Merchant, 2009). As these practices involve interacting or doing something together, they can also be characterised as audience-oriented and dialogic (Merchant, 2013).

However, while certain possibilities are a part of the design of technology, they are not immediately apparent to or accepted by users. Selwyn and Facer (2007) suggest thinking about digital technologies in terms of *affordances*. For them, affordances are users' socially constructed understandings of the possibilities of digital technologies which prompt how they can be used and what they allow to do. An affordance is a combination of properties of digital technologies and users' interpretations of these properties. This idea allows examining the extent to which the logic of new literacies is a part of individuals' practices.

Teachers' Personal and Professional Use of Digital Technologies

Researchers have explored the relationship between teachers' personal and professional uses of technologies from different perspectives. Teachers' access to ICT at home has been reported as influencing what technologies are used in their classrooms. Pre-service teachers in Burnett's (2009b) research, for example, were unaware about virtual worlds as they never used them in their personal lives. Teachers in Tan and McWilliam's (2009) study "struggled to see" (p. 222) how a social networking platform operated for the same reason. Dooly (2009) reported that the majority of teachers never participated in online communities while Chik (2011) and Robinson and Mackey (2006) found limited use of games among teachers. These researchers conclude that these patterns of personal ICT use may prevent teachers from envisioning the learning potential of technologies.

Teachers' age was identified as influencing their level of confidence with different aspects of digital literacies both in everyday life and teaching: mature teachers were less likely to feel at ease with new technologies and usually adopted a functional approach to ICT, while young teachers engaged in more playful practices (Robinson & Mackey, 2006; Tan & McWilliam, 2009). However, some studies caution against assuming that young teachers actively engage in new literacies as they may have varying degrees of access, interest, and confidence with some technologies (Burnett, 2009b; Robinson & Mackey, 2006). Tan and McWilliam (2009) also identified teachers' educational backgrounds as an important factor shaping how teachers felt about new technologies in classrooms. In one urban Queensland (Australia) school, ESL teachers with traditional Anglo education strongly believed that students need to develop basic language skills to be able to learn through a multimodal social networking platform.

These studies provide useful insights but it is important to move beyond psychological attributes and demographic factors in exploring connections between teachers' personal and professional domains. There is a need to understand teachers' values, assumptions, and dispositions about technologies inside and outside classrooms as they play an important role in how people engage in digital literacy practices (Gee, 1996). There has been little research which engages with this perspective. Only three studies that explored teachers' personal and professional experiences in this way have been identified (Burnett, 2009a, 2009b; Chik, 2011; Graham, 2008, Graham 2012).

This body of research established close links between teachers' use of technologies in their everyday lives and the kinds of learning experiences they offered to their students. For example, Burnett (2009a) found that one pre-service teacher's use of technology was "patterned by repeated references to order and control" (p. 80) both in personal life and teaching. The participant's everyday practices were mainly functional as she used technologies to organise and manage her daily routines. She approached

technology in teaching in a similar way—to capture students’ attention and, thus, to be in control. Burnett (2009b) argues that such “functional” (p. 120) practices in teachers’ personal life have little relevance for teaching new literacies.

Similarly, Graham’s (2008, 2012) research examined the role of teachers’ digital histories in teaching and found that those teachers who learned about technologies through a “serious solitary” (Graham, 2008, p. 11) journey and used technology to get the work done usually fitted technology into existing ways of teaching. In contrast, classroom practices of the teachers who approached technology in a “playful social” (Graham, 2008, p. 13) way in their lives to explore and experiment with digital spaces, provided students with opportunities to engage in new literacies.

Chik (2011) explored the use of social networking and digital gaming among English teachers in Hong Kong and found that those teachers who had limited (if any) exposure to digital games did not view gaming as valuable for language education. In contrast, those teachers who were regular gamers in their personal lives believed that digital games provided rich opportunities for language learning. They also perceived gamers’ collaboration as important: planning and sharing strategies to complete game tasks required extensive language use. Furthermore, they were more open to the types of games that can be used for language learning and did not limit them to educational games.

However, some of these researchers also argue that teachers may have rich experiences with digital technologies in their personal lives but they do not necessarily use them in teaching (Burnett, 2009b, 2011; Chik, 2011). As Dooly (2009) argues, “this nexus between personal and institutional use of technology has not been comfortably bridged” (p. 364). These findings suggest that teachers’ personal experiences with technology do not always survive in the transition to educational contexts.

The research on teachers’ attitudes to technologies in personal and professional contexts is not extensive and offers somewhat contradictory perspectives. Furthermore, Burnett’s (2009a, 2009b, 2011) and Graham’s (2008, 2011) studies focused on literacy teachers whose professional practices may be different from those of language teachers because they work in different contexts, have different learning agendas and use different teaching approaches. While Chik’s (2011) research examined language teachers’ perceptions and attitudes, it focused only on social networking and digital gaming rather than on a range of everyday and classroom practices. As a result, research knowledge about language teachers’ ways of thinking about technologies is fragmented and insufficient. There is a need for research which offers a more detailed and comprehensive understanding of what facilitates or hinders language teachers’ engagement with new literacies in personal and professional contexts.

From this perspective, Lankshear and Knobel’s (2006) notion of *mindsets* (p. 31) is a valuable concept:

The idea of a mindset usually refers to a point of view, perspective, or frame of reference through which individuals or groups of people experience the world, interpret or make sense of what they encounter, and respond to what they experience. (p. 31)

To discuss how people use digital technologies, Lankshear and Knobel (2006) differentiate between two types of mindsets: “industrial mindset/newcomers” and “post-industrial mindset/insiders” (p. 34). The first type assumes that the contemporary world is the same as it has been throughout the modern-industrial period but more technologised, while the second type assumes that new ways of doing things and being emerged with the development of new networked technologies. These two categories encourage us to see the differences between people but they are too narrow to gain nuanced insights into teachers’ uses of digital technologies. In contrast, a broader definition of mindsets offers more opportunities to explore why people use (or do not use) technologies in particular ways. Thinking about mindsets as “sets of assumptions, beliefs, values, and ways of doing things that orient us toward what we experience and incline us to understand and respond in some ways more than others” (Lankshear &

Knobel, 2006, p. 31) allows examining what individuals value in their experiences with digital technologies and what assumptions orient them towards *new* digital literacy practices.

To sum up, located within Literacy Studies, the research reported in this article conceptualises digital literacy practices as socially situated. People do not use technology in general ways; they engage with it in their unique ways because using technology always comprises certain ways of valuing, believing, and knowing. By examining the nature of the participants' practices in personal and professional domains, I attempt to document and compare language teachers' assumptions about affordances (i.e. socially constructed understandings of the possibilities of digital technologies) comprising their mindsets to complement previous research which has explored the relationship between teachers' use of technologies in personal and professional domains. This knowledge can help to explain why adopting new literacies as an approach to language teaching continues to represent a challenge.

METHODOLOGY

This paper draws on the data from a larger qualitative project. It employed a case study approach which was viewed as allowing the researcher to conduct an in-depth study of the use of technologies in the personal lives and teaching of five language and literacy teachers from Melbourne, Australia (Stake, 2006). An invitation to participate in the research was posted on information boards at several local schools, in faculties of education at a number of universities and on the sites of several professional groups on Facebook and Twitter. Due to the scope of this article, it is limited to the observation of the practices of three participants who are representative of a diversity of experiences with digital technologies. The table below (see Table 1) provides a summary of background information about the participants.

Table 1. *Background Information about the Participants*

Participant	Age	Subject	Year levels	Years of teaching experience
Lisa	53	EAL*	12	14
Jodie	31	Chinese language	3-4	6
Emma	48	EAL	Prep**-6	15

Notes. *EAL stands for English as an Additional Language; **In Victoria, Australia, Prep (preparatory) is the first year of primary school.

The data were collected over a period of five months. The first phase of data collection employed participant-generated photography (Prosser & Loxley, 2010). Each participant took 10-15 digital images reflecting technology use in everyday lives and teaching. I conducted visual data analysis after receiving the images. The analysis was informed by Hamilton's (2000) framework of basic elements of literacy events and practices, and entailed "reading" the images for meanings (Collier, 2001). Hamilton (2000) suggests that photographs capture a number of visible elements (e.g. people, physical settings, material tools, and activities), which can help identify non-visible constituents of literacy practices (e.g. social relationship, domains of practice, ways of thinking, and rules shaping the practices). This analysis helped to gain preliminary insights into what was important for the participants in their practices which, in turn, facilitated the second phase of data collection and focused the interviews.

The second source of data was interviewing using the photographs (Collier, 2001). At this second stage, two one-hour open-ended interviews were conducted with each participant. The use of photographs during the interviews facilitated the production of detailed stories about participants' practices which are important for qualitative research. However, individuals vary in their ability to develop narratives about the photos and to remember why they took them (Collier, 2001). These problems leave limited time for

preliminary analysis of the images and require the researcher to be highly adaptive. The interviews were audio recorded and transcribed with a high level of details (e.g. emphasis, voice tone, laughter, pauses) to capture the participants' emotions about digital technologies, which in turn, contributed to a better understanding of their assumptions about affordances.

Thematic analysis of all the data was used to identify and report patterns (themes) within data (Braun & Clarke, 2006). It followed six analytical steps: familiarising oneself with data, generating initial codes, searching for themes, reviewing themes, defining/naming themes, and producing the report (Braun & Clarke, 2006). Drawing on the theoretical framework, I closely examined the nature of the participants' digital literacy practices to understand what was important for them in these practices. I was also interested in whether these practices were similar in their private and professional domains. To ensure validity and reliability, different data sources were used to cross-check the accuracy and the findings were cross-checked with the participants (LeCompte & Schensul, 1999). One of the themes which emerged in the analysis was the participants' assumptions about affordances of digital technologies, that is their digital mindsets that shaped their practices across different contexts. This theme is explored in detail in this paper.

DIGITAL MINDSETS

The notion of *mindset* (Lankshear & Knobel, 2006, p. 31) appeared to be helpful to think about the participants' approaches to digital technologies because it allowed a focus on the assumptions that the participants had and their role in digital literacy practices without narrowing down the discussion of their complex experiences to a particular type of mindset. For this reason, while presenting the findings of the study, I use individual case studies to explore the participants' digital mindsets and I discuss them in terms of the assumptions about affordances of digital technologies that they held. In each case study, first, I examine the nature of the participant's everyday digital literacy practices and the assumptions that shaped them. Then, I explore the participants' typical classroom practices and associated assumptions. Finally, I compare these two domains.

Lisa

To illustrate her typical technology use Lisa produced several photographs capturing texting, online communication via e-mail, Skype and Facebook private messages, reading e-books on her Kindle, and listening to music using Media Player. She explained the role of these technologies for her: "For me, technology has been always an add-on rather than an integral part. It's a functional part of my life. It's a tool to do what I need to do."

Lisa mainly used technology to perform her existing routines such as family micro-management, communication, organisation of everyday activities and leisure more effectively. This attitude was reflected in her images of Kindle and smartphone use: she captured herself at home sitting on the couch reading and texting rather than doing these activities "on the go" as these technologies afford. Her main reason for using Kindle was its light weight as compared to a print book. She checked her e-mail and Facebook occasionally—"2-3 times a week" when she had "time and mental space" rather than regularly and interchangeably with other activities as their design assumes (Lankshear & Knobel, 2011). Similarly to Burnett's (2009b) and Graham's (2008) observations of a purely functional role of ICT to "get on" in the world of work, for Lisa, technology was also an effective tool to get her usual things done. While she was satisfied with her experiences, such practices are usually referred to as traditional—similar to conventional print-based literacies but just more technologised (Snyder, 2008). The nature of these practices was shaped by Lisa's assumption that the main affordance of digital technologies was their ability to support and improve what she usually did and this was a dominant assumption in her digital mindset.

Nevertheless, some digital literacy practices altered Lisa's ways of doing usual things:

I'll be lost without my mobile phone now. First thing in the morning—a mobile phone. Just checking that nothing happened during the night which occasionally happens to our second son who lives in the city. The mobile phone goes with me everywhere. That's a huge change of the years.

Lisa's frequent communication suggests that some of her digital literacy practices were immediate and quickly shifting across different contexts—the features which are associated with new literacies (Lankshear & Knobel, 2011). These practices changed her usual ways of communication as she felt she was able to take more care and, perhaps, even exercise more surveillance with the help of her mobile phone. These practices were facilitated by Lisa's beliefs that two other affordances of digital technologies were related to their ability to connect (i.e. connectedness) and to provide opportunities to take the initiative especially in family communication (i.e. empowerment). Furthermore, in relation to her image of Media Player Lisa said that she used audio to “read musical scores” which helped her to learn in a new way—through an audio mode. These practices can be characterised as multimodal suggesting that she recognised multimodality as another affordance (Sheridan & Rowsell, 2010). These assumptions were also central to her digital mindset but they had less significance for her as compared to her main belief that technology is a tool.

Lisa was enthusiastic about technology use in teaching. She photographed her four main activities with ICT: a grammar quiz online, watching a video online, doing research using Google and typing up a Word document. Her main purpose of technology in her classroom was “reinforcement and consolidation of language skills” which was also evident in her explanation of the learning activities:

[About a grammar quiz] Again as a reinforcement of language skills. That's not a computer game they play at home.

[About videos] So listening to different accents and reinforcing new vocabulary and just exposing the students to other opinions.

[About a Word document] They create their own narrative—again reinforcing what they've been doing in the classroom. First in their exercise books. Then they typed it up, made it colourful. They know how to change colours or fonts and they get free choices.

These activities mainly aimed to support her students' language proficiency as her frequent use of the word “reinforce” suggests. This approach is usually viewed as traditional because technology simply supports existing pedagogies (Snyder, 2008). Lisa deliberately chose multiple-choice grammar quizzes and used them as another version of skill-and-drill exercises rather than using games offering rich environments for sophisticated language use (Gee, 2003). Her use of the videos also substituted other methods traditionally used to develop students' listening skills and vocabulary (e.g. a tape-recorder or a teacher reading aloud). Lisa encouraged the use of MS Word in the same way as the students would use paper notebooks. She held a strong belief that technology is another tool to support the development of language skills.

However, some of these activities had additional learning agendas and some characteristics of new literacies. Reflecting on the image which captured Google use, Lisa said she taught students how to “gather and analyse information” which fostered on-demand and non-linear digital literacy practices (Jones & Hafner, 2012). This activity was facilitated by Lisa's assumption that technologies provide constant access to vast amounts of information and students need to know how to deal with it. Lisa also encouraged independent work with information online to facilitate “decision making” which suggests that she recognised that technologies can empower students to make informed choices (Snyder, 2008). The assumption about empowerment was also evident in her approach to online videos that she used to

“expose” students to different perspectives. Similarly, by encouraging students to choose different colours and fonts when typing up their narratives, Lisa let them make decisions about presentation of their work. Furthermore, these practices were multimodal and creative. Lisa used videos as a mode of meaning making in its own right and she encouraged the use of colour, font and illustrations in students’ narratives as a powerful element of presentation (Sheridan & Rowsell, 2010). These practices were shaped by her view of multimodality as another affordance of digital technologies.

The comparison of Lisa’s use of digital technologies in personal and professional domains suggests that her classroom activities were very similar to her everyday practices. She strongly believed that the main affordance of technologies was “support” and “improvement” of existing routines. Located within thinking about technology as a tool to achieve this, her digital mindset shaped her practices in these two domains in the same way: she mainly used technologies to accomplish her usual context-specific activities. However, her assumptions about three other affordances (connectedness, empowerment, and multimodality) as a part of her mindset also played out both in her personal life and teaching: on-demand access to information, taking initiatives when using digital technologies, and engaging with multimodal digital texts were evident in both domains.

Jodie

Jodie photographed and referred to a range of personal practices: the use of Google calendar and e-mails, texting, the use of different applications, social networking (e.g. Facebook, Twitter, social bookmarking, and Foursquare), making videos and audios, blogging, online games, and reading online. Her attitude to technologies was very different to Lisa’s in terms of the dominant assumptions comprising her digital mindset:

I think there is an amazing amount of stuff that we can do now in the Digital Age. It’s exciting... the possibilities that are coming out ... the things that we are able to do! I love the change and trying something new.

Jodie was open to new opportunities that technologies provided as she believed that they can offer much more than doing old things more effectively. Explaining her images of texting and using an iPad “on the go” she said:

A big part of my life is now lived online. So generally my workload is my e-mail, messages, my calendar. Check that several times a day. Constantly doing that.

All her devices were synchronised and Jodie often carried them with her to engage in communication or access relevant information. Her life existed equally across virtual and real domains which required her to move constantly between different activities, contexts, identities, communities, digital spaces, and texts (Lankshear & Knobel, 2011). As a result, her digital literacy practices were ongoing, fluid, and non-linear. They were informed by Jodie’s belief that technologies can connect her on demand with her networks and resources, which was crucial for Jodie in her lifestyle. Jodie also actively used social media for self-initiated professional learning:

[In these spaces] there’ve been amazing conversations, resources, information about different things to go and look at... It’s definitely connection with other people, information that we can share, comments we give each other. It’s my best professional learning I have ever done!

In contrast to Lisa who only used Facebook private messages, Jodie connected with other teachers, engaged in a professional dialogue, shared resources, and collaborated in these digital spaces. Her practices were collaborative, dialogic, and participatory (Jones & Hafner, 2012). Their nature was shaped

by Jodie's assumption that digital technologies support sharing and collective intelligence, and these affordances were also central to Jodie's digital mindset because they provided opportunities for digital literacy practices which changed her professional learning in important ways as she stated.

In relation to her blogging experience, Jodie said:

I am really interested in doing more audio blogging. So it's just an experiment... I just want to do things a little bit differently, experiment with different ways of using the same tools.

Jodie experimented with different ways of posting which characterises her blogging practices as creative and playful (Merchant, 2013). They were also multimodal and her use of multimodality was more sophisticated than Lisa's. While Lisa was a consumer of multimodal texts, Jodie was both a consumer and producer (Sheridan & Rowsell, 2010). This was also reflected in Jodie's production of the Web site for her students that she designed in the context of her personal everyday practices. In one of her images she captured herself making a video for the Web site but during the interview she mentioned the use of still and moving images, voice recordings, sound effects, music, colours, and graphs. Jodie also used her blog to make a change in her life: in this space she raised money to attend a professional conference in Canada. Such playful, innovative, audience-oriented, and multimodal practices were informed by Jodie's perception of technologies as providing opportunities for experimentation, multimodal meaning making, and empowerment as a part of her mindset.

However, there were practices that were purely functional in Jodie's life. She referred to her reading experience:

It is just an extension of my interest in reading. [Technology] allows me to collect articles that I can read. Collected in a different way, digitally.

Evidently, digital copies simply substituted hard copies. Some of Jodie's practices helped to manage her existing routines related to family life, friendships and hobbies. These practices were important but they replaced what Jodie did before and resembled "old wine in new bottles". Although, as part of her mindset, she held an assumption that one of the affordances of digital technologies is to support her existing social activities, it was less significant to her than her other assumptions. As a result, these traditional practices were less dominant in Jodie's repertoire as compared to Lisa's.

In her classroom, Jodie used a set of netbooks, iPads and iPod touches and a flat screen TV connected to her computer. At the time of the study Jodie used what she called "transmedia storytelling" as an approach to language teaching. She designed an ICT-supported game-based unit about Chinese writing comprising a range of learning activities. These activities were located on the Web site that she created and involved QR codes, speaking avatars, games, digital photography, videos, Google Docs, graphs, interactive puzzles, online polls, presentations, and virtual worlds. Jodie explained their educational value:

That certainly is helping them [students] with all different digital literacies... They need to know how to manipulate technology for their own benefit. Like where to put the things, how to collaborate, what to say online and how to manage their own technology experiences.

To complete these activities the students were supposed to experiment with digital spaces as well as to move seamlessly from one space/text/context to another (Merchant, 2013). Using Google documents and virtual worlds required working in groups and, thus, students' digital literacy practices were collaborative and communicative helping them to learn how to deal with new forms of interaction (Jones & Hafner, 2012). The use of online polls, quests in virtual worlds, making and sharing videos required the students

to take an action which facilitated participatory practices. Using digital photography, QR codes, graphs, voki avatars, and videos provided opportunities to construct and communicate meanings through different modes, genres, and resources of the digital medium (Sheridan & Rowsell, 2010). Jodie recognised and actively employed in her teaching different affordances of digital technologies such as connectedness, experimentation, sharing, collective intelligence, empowerment, and multimodality. Her approach encouraged the students to engage in and learn about new literacies as she explained.

The development of language competence was also central to Jodie's approach. She explained the image capturing a student with an iPad.

This app is about drawing strokes. It has an arrow to show them direction that they should actually go.

This activity aimed to improve writing skills. There were other similar examples: making voice recording to practise pronunciation, completing a matching activity online to expand vocabulary, and, using a TV for demonstrations. Like Lisa, Jodie used technology to improve students' language skills. The nature of these activities was informed by her assumption that one of the affordances of digital technologies for learning was their ability to support the development of language. However, she tried to balance different learning agendas related to language proficiency and new literacies.

In relation to the connections between personal and professional use of digital technologies, Jodie said:

[When using ICT] I can see how things have been put together in these online spaces and what's going on and what effect it has and how people use it. And then, *how can I do this for the kids?* So it will all come back to creating those experiences for educational reasons.

There were close connections between Jodie's personal and professional domains. Learning activities in her unit patterned her personal interest in multimodality, sharing, networking, connectedness with resources, people, and activities, experimenting and using technology for one's own benefit. While there were some purely functional practices with ICT in her personal life, there were some traditional experiences with technologies in her classroom. However, in both contexts, they were less significant for Jodie as compared to new literacies.

Emma

Emma's photos referred to reading e-books, listening to audiobooks, browsing online, communication and micro-management of the family with the help of iPhone, e-mail, Skype and Facebook, playing online games, and producing learning materials for her students—audio files and Word documents. Emma was different to the two other participants because her dominant assumptions about affordances and digital literacy practices were challenging to identify. On the one hand, she summarised her overall attitude to technology in the following way:

I don't go out looking for something "Oh, wow! It looks like a great thing to do"! It will be "Oh, that could be a useful thing for this".

Emma often adopted technologies to her existing experiences rather than discovered their potential. This approach was evident in her use of mobile phone to organise family routines efficiently, typing up and organising work documents and sending Facebook private messages. While digital technologies made Emma's life more efficient, they served as an add-on to her activities (Snyder, 2008). These digital literacy practices were facilitated by her assumption that the main affordance of digital technologies was to improve her daily life.

However, there were many practices that were informed by the logic of new literacies. Emma explained

how she engaged in communication:

There is a lot of communication via Skype and e-mail. It's *constant*. The first thing I do in mornings—check my e-mails.

Like Jodie, Emma was “always connected”. Her photos captured different spaces and activities suggesting that she continuously and interchangeably engaged in online browsing, social networking, reading e-books, and playing games. These digital literacy practices were ongoing and constantly shifting between different contexts, texts, and digital spaces (Merchant, 2009). Her assumption about connectedness provided by technologies was central to her digital mindset.

For Emma, Facebook games and audiobooks were more than tools to pass free time:

I play games as a relaxation. But it's also a nice way to communicate with friends because I don't see them very often.

[About audiobooks] You'd swear that you listen to two or three different people at times when you've got different characters!

Sharing game resources gave Emma a feeling of communication. In a similar way, she occasionally exchanged teaching resources online with her peers in the context of her studies at university. Her practices in these spaces were collaborative, distributive, and participatory (Lankshear & Knobel, 2011). As her comment about audiobooks suggests, sound effects, different voices, and intonation contributed to how Emma constructed the meaning of the story (New London Group, 1996). A similar approach informed Emma's production of mp3 learning materials. Furthermore, like Jodie, Emma attempted to experiment with digital technologies: creating mp3 files was a comparatively new experience for her. These practices were multimodal and playful (Sheridan & Rowsell, 2010). Emma seemed to recognise that technologies support experimentation, multimodal meaning making and sharing. Although her understanding of these affordances was less elaborated than Jodie's, it was more sophisticated and creative than Lisa's.

Emma's main classroom experience included the use of online videos. A computer and a projector were the only technologies available. However, she encouraged students to use technology to complete their homework: using mp3 materials that she created, audiobooks, podcasts, e-books, a Facebook group, and different language learning Web sites. Emma described the purpose of these learning activities:

My broad aim of technology use is engagement. You can do exactly the same thing by getting a hard copy but if they [students] have it on the screen that's more interesting for them.

Emma used audiobooks and podcasts to improve students' listening skills and online videos to expand their vocabulary. Although she seemed to be satisfied with the outcomes, such use of ICT in language education can be characterised as conventional. Her point that the same aims can be achieved with the help of “a hard copy” is especially illustrative of how technology simply substituted traditional teaching methods in Emma's classroom. She had a strong belief that digital technologies can and should support and reinforce the development of language skills.

However, at the same time, some activities facilitated new literacies. Emma established a Facebook group for the students to “share ideas with each other” which supported students' collaborative, dialogic, and audience-oriented digital literacy practices (Merchant, 2013). With her different resources (e.g. audios, e-books, Web sites), Emma encouraged students' “constant access to everything that they need” to facilitate on-going and immediate digital literacy practices for learning. She used audiobooks to help the students to get “meaning coming through the intonation or expression” which suggests multimodal meaning making

in her classroom. These examples illustrate that connectedness, multimodal meaning making, and sharing were central to her teaching approach with technologies.

The comparison of Emma's practices within and beyond the classroom suggests some similarities. This was particularly obvious in relation to her love of audiobooks which she actively used in her personal life and teaching. This similarity was also evident in a more or less equal mix of traditional and new digital literacy practices in her personal and professional contexts facilitated by her digital mindset which comprised different but equally important assumptions about technologies such as support and improvement, connectedness, multimodality, and sharing.

DISCUSSION

The research reported in this paper set out to investigate the relationship between teachers' personal and professional uses of digital technologies with the help of three research questions outlined earlier. This section discusses the themes that emerged from the case studies presented above in relation to the research questions and previous research in the field.

In relation to the questions that explored how teachers used digital technologies and what influenced their practices, the study found that the participants' digital literacy practices were shaped by digital mindsets. Digital mindsets comprised the assumptions about affordances of digital technologies which inclined the participants to use technologies in particular ways across various domains. While much has been written about opportunities provided by the design of digital technologies, this study extends understanding about what features of design the participants recognised, how they perceived them, and if they accepted these opportunities.

In particular, the study identified seven interrelated affordances of digital technologies as viewed by the participants although there were differences in how the participants perceived and used them: (a) *support and improvement*: technology is viewed as making things better, more efficient and interesting; (b) *connectedness*: associated with the opportunities for being always-connected to activities, networks and resources; (c) *experimentation*: related to independent exploration and creative play with what is possible in digital spaces; (d) *sharing*: refers to the distribution of the ideas and different digital commodities through a range of social channels; (e) *collective intelligence*: assumes joint or collaborative activities, decision making, generation, collection, and use of resources; (f) *empowerment*: related to the opportunities for voicing concerns, expressing opinions, taking, or leading actions to address certain issues; (g) *multimodality*: involves possibilities for interaction and representation in different modes.

These affordances are consistent with previous research that documents what digital technologies are designed for, and how some people use them (Jones & Hafner, 2012; Merchant, 2013). However, the study highlights that the participants did not necessarily recognise all of these affordances. Only Jodie's digital mindset comprised quite elaborated assumptions about all these affordances. Emma recognised most of these affordances (except for empowerment and collective intelligence). Lisa only recognised and used four affordances—support and improvement, connectedness, empowerment, and multimodality. Furthermore, it was found that there were differences in how the participants conceptualised these affordances and that the participants' assumptions had different significance for them which, in turn, played out in their practices in important ways. Digital mindsets located within thinking about ICT in terms of support and improvement facilitated practices that were in the main a reproduction of print-based literacies, just more technologised. However, comprehensive, elaborated and creative assumptions about other affordances facilitated digital literacy practices that could be characterised as new.

These findings extend understanding of the factors influencing how digital technologies are used in language teaching. The notion of digital mindset helps to move beyond psychological attributes (e.g. confidence and motivation) (Robinson & Mackey, 2006; Tan & McWilliam, 2009) and demographic characteristics (e.g. age, educational background, and access to digital technologies (Dooly, 2009; Tan &

McWilliam, 2009)) in understanding the nature of teachers' technology use. These findings complement the research by Burnett (2009b), Chik (2011) and Graham (2008) who argued that teachers' attitudes to digital technologies influence their ICT use. The findings here draw attention to the important role of teachers' digital mindsets in their digital literacy practices and highlight that individuals' assumptions about different affordances of technologies may facilitate or hinder the incorporation of new literacies in the language classroom.

In relation to the question about the relationship between teachers' personal and professional use of digital technologies, this research found that while the participants' digital literacy practices were always aligned with specific contexts (Barton & Hamilton, 1998; Gee, 1996), there were common patterns in how they approached digital technologies in personal and professional domains. The assumptions about affordances that they held in everyday life were evident in their teaching and they influenced the kinds of experiences with technologies these teachers offered to their students. Lisa who thought that the main affordance of digital technologies was support and improvement, and used technologies in her personal life usually in this way, mainly employed ICT as a tool to support existing pedagogies aiming to develop language proficiency. In contrast, the participants' creative and elaborated understandings of other affordances provided more opportunities for the students to engage in new literacies. Consistent with Gee's (1996) theory, which highlights the intricate relationship between individuals' beliefs and some previous research (Burnett, 2009a; Graham, 2012), this study emphasised the power of digital mindsets and individual's assumptions about affordances of digital technologies. It suggests that an individual mindset is a "cage" (Mackay, 1998, p. 93) and assumes something "set". People "carry" these "cages" everywhere and they frame their activities. This means that teachers' use of digital technologies in classrooms is not isolated. Their everyday digital literacy practices and digital mindsets are not left behind at the classroom door: they are brought into the classroom and influence what happens there.

CONCLUSIONS AND IMPLICATIONS

This article examined teachers' technology use in personal life and teaching to provide additional insights into why teaching new literacies continues to represent a challenge. Inclusion of new literacies in school settings requires many changes because curriculum and pedagogy are already constrained by many external factors. Importantly, it requires individual teachers' efforts because, as this study illustrates, teaching new literacies can be further limited by teachers' digital mindsets.

If progress is to be made in teaching and learning new literacies, greater consideration needs to be given to teachers' everyday digital literacy practices and digital mindsets. Professional development and learning should take into account teachers' personal experiences with technologies and provide teachers with opportunities to reflect critically on their digital mindsets, and examine and challenge their dominant assumptions. They also need opportunities to extend their understandings about affordances of ICT in creative and innovative ways. In turn, these experiences can help re-thinking approaches to language teaching.

Seven interrelated affordances of ICT identified in this research have important implications for language pedagogy. The participants' assumptions about certain affordances facilitated new literacies both in their everyday lives and teaching and, thus, classroom practices can benefit if they are informed by this logic. Language teachers need to reflect on the activities that they encourage in the classroom and explore what assumptions inform them. There is nothing wrong with thinking about technology as a tool to support language learning but this perspective is limiting and can impede the development of students' new literacy capabilities. If classroom activities with technologies are informed by the ideas of connectedness, experimentation, sharing, collaboration and cooperation, empowerment, and multimodality, then students have more opportunities for learning new literacies.

This study contributes to the field of language education by identifying a close relationship between

language teachers' everyday digital literacy practices and the use of technologies in their classrooms. Although a case study methodology and a small sample size proved useful to conduct an in-depth investigation, the participants were not representative of the Melbourne population, language teachers, or ICT users. However, these participants displayed mindsets or characteristics of the mindsets that might be shared with other teachers. Thus, researchers who wish to transfer the results of this study to a different context can use the description of the research context and the assumptions that were central to this research and evaluate the extent to which these findings apply to new situations related to the use of new literacies in everyday life and in classrooms.

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